



VIENNA ENERGY
FORUM 2021
where action meets ambition

SUMMARY OF THE VIENNA ENERGY FORUM 2021: 5-7 JULY 2021



Convening under the theme “Where Action Meets Ambition,” the 2021 edition of the Vienna Energy Forum (VEF 2021) aimed to spur action on 2030 and 2050 climate and energy goals by bringing together government representatives, stakeholders, and experts to discuss key topics that advance sustainable development in the energy domain and contribute to global climate action.

The near-term objective of the Forum was to build momentum, develop recommendations and spur breakthroughs in commitments and action for the High-Level Dialogue on Energy (HLDE) that will convene on 20 September 2021 under the auspices of the UN General Assembly, the G20 Leaders’ Summit in October, and the 26th session of the Conference of Parties to the UN Framework Convention on Climate Change’s (UNFCCC COP 26) in November.

Through high-level thematic plenaries with panel discussions, executive dialogues, and roundtables, the Forum focused on:

- Food system transformation, including scaling food productivity and smart food systems;
- Industry integration, including the race to zero emissions and the digital revolution;
- Energy efficient products;
- Reimagining energy systems, including renewable capital and green grids;
- The consumer dimension, including how consumers may drive change and spur new consumer services;
- Green transportation and sustainable mobility solutions; and
- Resilient networks and the blue economy in small island developing states (SIDS).

A number of recommendations for the energy transition emerged during VEF 2021, and participants also heard calls to action from UN leaders and Austria, Forum co-host.

A theme running throughout VEF 2021 was the need to involve youth in the energy transition and the role young women could play as catalysts for change. This was the sole focus of a first-ever youth day, Youth for VEF, co-organized by youth leaders on 5 July.

VEF 2021 also focused on: the potential of the African continent to move towards an energy transition that promotes progress and development; and the plight of SIDS, which face many constraints, including vulnerability to climate change, geographical isolation, and limited territory for placement of renewables.

VEF 2021 participants agreed on the undeniable need to decarbonize the economy. They called for a just and inclusive transition, requiring political resolve, innovative solutions, additional financing, capacity building, and a people-centered approach. They generally agreed that the recent acceleration in the affordability and availability of renewable energy technologies was remarkable. However, they also noted persistent barriers to accessing such technologies given unfavorable enabling environments, difficulties in achieving the necessary scale to attract the investment required, inadequate project formulation, and consumer confidence.

Originally scheduled for 2020, the sixth VEF was postponed until 2021 due to the COVID-19 pandemic. VEF 2021 met from 5-7 July 2021 in a virtual format due to continuing restrictions as a result of the pandemic. Over 2,000 participants from 146 countries registered to participate, including Ministers and other government representatives, senior officials of UN agencies and other international and regional organizations, and representatives from the private sector and civil society. The event was co-organized by the UN Industrial Development Organization (UNIDO), the International Institute for Applied Systems Analysis (IIASA), the Federal Ministry for European and International Affairs, and the Austrian Development Agency.

BRIEF HISTORY OF THE VIENNA ENERGY FORUM

The VEF aims to explore how energy can contribute to meeting global development challenges, based on the premise that issues, such as poverty, climate change, security, health, and income, are closely linked to the nature, accessibility, and affordability of existing energy systems. Established in 2008 by the Government of Austria, IIASA, and UNIDO, the Forum takes place every two years.

VEF 2009

The first VEF convened in Vienna, Austria, from 22-24 June 2009 under the theme “Towards an Integrated Energy Agenda Beyond 2020: Securing Sustainable Policies and Investments.” The conference served as an opportunity to: shift the debate on energy and development beyond generalities to identify specific courses of action; initiate and advance regional and international cooperation; and present new international energy initiatives, such as the International Renewable Energy Agency (IRENA). One of the Forum’s key recommendations foresaw the creation of a Sustainable Development Goal (SDG) on energy, that would seek to achieve universal energy access by 2030.



VEF 2013

The third VEF, themed “One Year after Rio+20: The Energy Future We Want,” took place in Vienna from 28-30 May 2013. It addressed sustainable energy in the context of negotiating the post-2015 development agenda, a process initiated at the 2012 UN Conference on Sustainable Development (Rio+20).

VEF 2015

The fourth VEF, themed “Sustainable Energy for Inclusive Development,” was held from 18-20 June 2015 in Vienna. It aimed to contribute to the post-2015 sustainable development agenda and climate processes by emphasizing their multiple co-benefits, as well as showcasing best practices and actions on the ground.

VEF 2017

The fifth VEF met from 9-12 May 2017 in Vienna, under the theme “Sustainable Energy for the Implementation of the SDGs and the Paris Agreement.” The event sought to promote dialogue on: the nexus between energy, climate, transport, food, water, and health; linkages in implementation of the SDGs and the Paris Agreement on climate change; and the role of innovation as a global driver for sustainable growth.

VEF SPECIAL SESSION 2018

This session on “Powering Innovation for Prosperity” convened on 14 May 2018 with the aim of contributing to the UN High-Level Political Forum on Sustainable Development’s (HLPF) review of SDG 7 (affordable and clean energy) in July 2018. The Forum was organized around the themes of energy system transformation, climate and clean energy technology and innovation, and delivering prosperity through partnerships.



REPORT OF THE YOUTH FOR VEF

Katharina Moser, Conference Host, convened the VEF's first-ever youth forum, Youth for VEF, on Monday, 5 July. At the core of Youth for VEF were three linked plenary sessions:

- A thematic session on “future proof skills,” which discussed how best to ensure youth get the skills needed to join the energy transition workforce;
- A thematic session on “enabling environment,” which addressed ways to align legislation, policies, programmes, and projects to address the needs of young women and men involved in the energy transition; and
- A ministerial segment featuring exchanges between youth and government representatives on what initiatives and policies best promote youth engagement in the energy transition, and how governments can support the development of skills and provide enabling environments for youth in the energy sector.

Youth for VEF also featured a variety of events designed for and by youth representatives, including: side events focused on such issues as “reaching net zero with youth,” green banks to scale up investments in clean energy and energy access in developing countries, and “green skills” for youth in the energy sector; guided virtual tours of projects in biomass, biofuel, electric mobility, and solar and wind energy; a quiz to test participants on their knowledge of SDG 7 (affordable and clean energy); an interactive session where youth could dialogue with energy experts; and three workshops on youth advocacy for the energy transition, a practical guide on issues related to youth in the “energy space,” and best practices and case studies in energy efficiency policy.

FUTURE PROOF SKILLS

David Arinze, Diamond Development Initiatives, moderated this panel between experts and youth representatives. Panelists tackled issues at the intersection of employment and education, concerning entry-level opportunities and employment and skills gaps in the clean energy industry, and re-skilling for a just energy transition, with particular attention to gender dimensions.

Regarding skills relevant to the energy transition, which are not currently emphasized sufficiently in college curricula, Shuvajit Payne, Barefoot College, suggested specific knowledge about the energy sector learned now might become outdated in 10-15 years. Thus, he stressed the importance of teaching critical thinking, adaptive learning, and evaluating everything in a student's life with sustainability criteria.

Alesia Iunikova, Rosatom Technical Academy, emphasized training in energy planning and strategy optimization. She noted the Russian Federation is now offering an international double-degree masters programme in this vein.

On getting more women into clean energy careers, Sylwia Łyskawka, Youth Climate Council Poland, said women must be aware that breaking into a sector currently dominated by men is possible and that involvement in the energy transition is both a good earning opportunity and meaningful to all of society.

Payne suggested showing women how becoming involved in the clean energy revolution can empower them. He mentioned Barefoot College’s “solar mamas” programme, which has trained over 2,000 women in rural and marginalized communities around the world to be solar engineers even if they are illiterate or have no formal education. He said once the women bring electricity and light to their villages, they become leaders and role models.

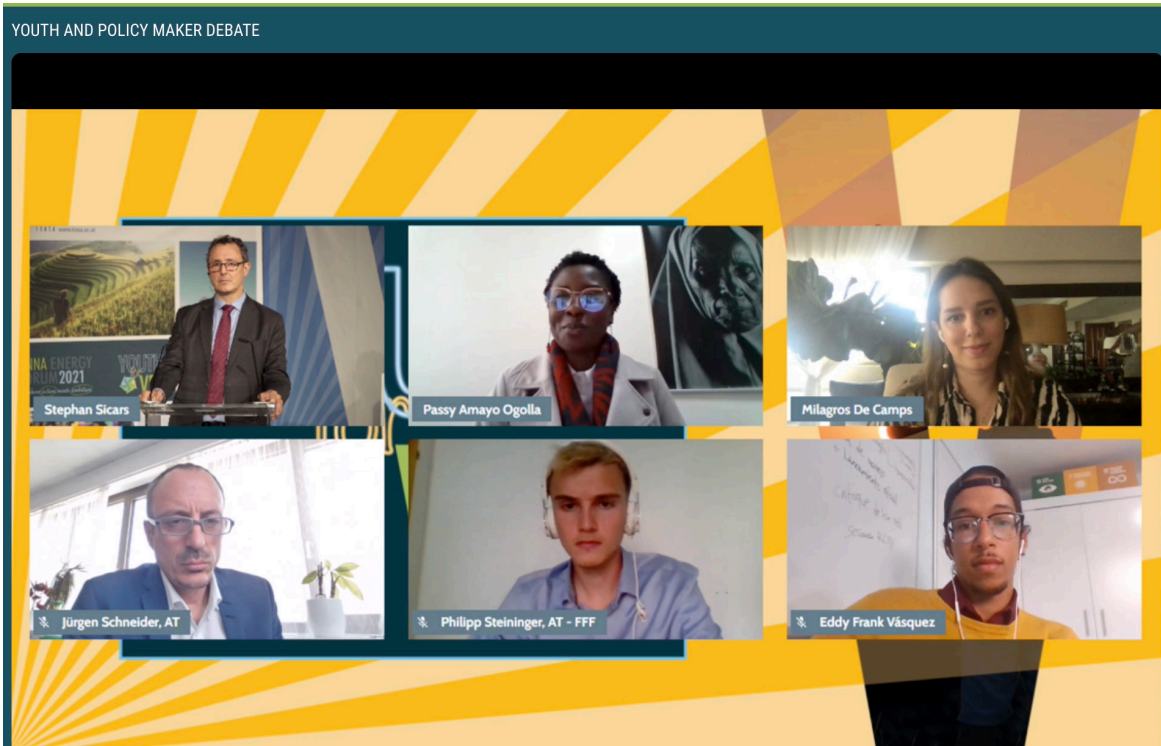
Faith Chege, Energy and Environment Partnership Trust Fund (EEP Africa), emphasized mentorships with women already in the field, who can model and guide young women into their energy careers. She also suggested apprenticeships and initiatives by renewable energy companies to recruit and train women, citing an example in Tanzania. With respect to increasing the number of jobs relevant to the energy transition, Juliette Leboda, Pour un Réveil Écologique, emphasized hands-on field work either through volunteer or paid internships, fellowships, or apprenticeships.

On reskilling, Leboda said each country must first assess what skills are needed for the transition, since the situation will vary from country to country depending on their energy mix and socioeconomic situation. She also suggested global assistance would be key in assessing skills needed and in conducting training and reskilling programmes. Lunikova noted many industries already support continuing education and training programmes, and that these could be utilized.

Regarding other skills and training needed for youth to garner future-proof skills, Chege noted the shortage of energy and entrepreneurially inclined engineers in many countries.

Panelists noted that young graduates are searching for meaningful career paths through employment opportunities in enterprises whose values align with theirs and advised that companies use appropriate job descriptions to market themselves and their values.





YOUTH AND POLICY MAKER DEBATE

Stephan Sicars, UNIDO, and Passy Amayo Ogolla, Children and Youth Major Group, co-moderated this panel featuring youth and government representatives from Austria and the Dominican Republic. The co-moderators explained that the objective of the debate was to engage youth and government officials in a dialogue on what initiatives and policies best promote youth engagement in the energy transition, and on how governments can support the development of skills and the provision of enabling environments for youth in the energy sector.

Milagros de Camps, Ministry of Environment and Natural Resources, Dominican Republic, noted a growing trend in her country for youth involvement in driving transformative change towards a sustainable energy system. She highlighted the role that social media is playing in environmental activism, urged youth to participate in public hearings and regularly contact their Congressional representatives, and spoke of the need to open more formal spaces for dialogue between youth and members of Congress.

Jürgen Schneider, Federal Ministry for Climate Action, Environment, Energy, Mobility, Innovation and Technology, Austria, said the energy transition is a societal challenge and, thus, not a task for governments alone but for society at large. He suggested tapping into a broader pool of talent, including youth, women, migrants, and people with disabilities, to make structural change happen. He added this is why his government is promoting science, technology, engineering and math education, and re-skilling. He acknowledged that while the current Austrian Panel on Climate Change does not include youth, governance reform is currently underway that should include the establishment of a youth panel.

Philipp Steininger, Fridays for Future, Austria, commended his country's Renewable Expansion Law but highlighted other needs for a green recovery, including a fairer accounting of electricity consumption, implementing carbon pricing, and encouraging a gender-inclusive energy industry. Advocating for more representation of youth in decision-making bodies, Steininger proposed the creation of a citizen council on climate change and energy transition as a governance reform option. He also noted that paid internships would expand opportunities for youth input, since activism usually relies on unpaid volunteerism which many youth, particularly those from marginalized segments of society, cannot afford to undertake.

ENABLING ENVIRONMENT

Olubunmi Olajide, Student Energy and Founder and Host, The Energy Talk podcast, moderated this panel.

Sherry Kennedy, SEforALL, underscored her organization's commitment to championing the inclusion of youth in the SDG 7 agenda. She highlighted youth participation in the technical working groups and Ministerial Thematic Forums for the HLDE, resulting in youth presenting their own energy compact to the Dialogue.

Ujunwa Ojemeni, Private Financing Advisory Network, called for several types of assistance to start-ups, especially those involving young people. She mentioned, in particular:

- Project development assistance, namely getting projects to the technical and commercial viability assessment stages, articulating a sound business model, and defining the market;
- Early-stage funding, as a grant or as a share of equity;
- Greater flexibility in assessing projects for possible financing, understanding that many start-ups by their very nature cannot be judged by the same criteria as fully established firms;
- And structuring the financing in tranches, so as a project reaches certain measurable milestones, more financing is released.

Kakembo Galabuzi Brian, Founder and Executive Director, Weye Clean Energy Co. Ltd., acknowledged that getting financing remains a challenge for youth lacking an investment "track record" or collateral. He suggested working on energy projects with youth organizations, such as Student Energy, which can provide them with experience and exposure, establish a network, and learn skills and the local landscape for energy, while providing youth with someone to vouch for them.

Kennedy urged youth "to come prepared" to foster trust in potential investors by learning "soft skills," such as analysis, project design, communication, developing strategies, and marketing themselves and their project concepts.

Jari Aaltonen, Manager, Barbados CleanTech Cluster (BLOOM), emphasized the role of creating supportive "ecosystems" that bring together governments, the private sector, universities, and others to support the development of renewable energy start-ups.



REPORT OF THE VIENNA ENERGY FORUM 2021

OPENING SESSION

Conference Host Sarah Kelly opened the Forum on Tuesday, 6 July, by introducing representatives of the four VEF institutional cosponsors for their opening remarks.

Alexander Schallenberg, Federal Minister of European and International Affairs, Austria, outlined key policy actions and ambitions for his country, including 100% renewable energy-sourced electricity by 2030, climate neutrality by 2040, and a pledge of EUR 130 million to the Green Climate Fund (GCF).

Li Yong, Director General, UNIDO, expressed hope that VEF 2021 would yield recommendations for immediate action needed to bring the world closer to achieving the 2030 climate and energy goals. He called for expedited deployment of clean energy technologies in end-use sectors, stronger policy alignment, and a shift towards mission-oriented innovation to address the challenges of end-use sectors and provide sustainable energy to all. Li also announced a Global Partnership for Hydrogen Application in Industry with Austria and Germany, and a Hydrogen Center of Excellence supported by China.

Leena Srivastava, IIASA, asserted that no single stakeholder can help the world achieve its climate and energy goals, no matter how committed or ambitious they are, so partnerships are key. She called for all stakeholders to align on an agreed pathway.

Leonore Gewessler, Federal Minister of Climate Action, Environment, Energy, Mobility, Innovation and Technology, Austria, observed that while the pandemic can be fought with vaccines, there is no vaccine against climate change and everyone is affected.

BUILDING BACK GREENER: SPOTLIGHT ON RECOVERY

Amani Abou-Zeid, Commissioner for Infrastructure and Energy, African Union (AU) Commission, outlined how renewable energy development features in many AU plans, policies, and programmes, including Agenda 2063, the COVID Response and Recovery Action Plan, and the Program for Infrastructure Development in Africa. She highlighted AU efforts to create a continent-wide electricity market through interconnected grids, as well as AU-supported projects for mini-grid systems, off-grid solar systems, rural access to energy, clean cooking, bioenergy, wind energy, green hydrogen, small-scale hydropower, and digitalization of grids. Abou-Zeid called on all stakeholders, including the private sector, civil society, research institutions, and donors, to join the AU in these efforts to transform energy on the continent.

SPOTLIGHT ON YOUTH FOR VEF

Kelly interviewed Israel Faleye, Youth for VEF representative, about his impressions of Youth for VEF. Regarding the overarching message he took from the day, Faleye said it was that “nothing about us is without us,” meaning that youth must be involved in forging the energy transition because it affects their future. While urging youth to take responsibility in seeking the required skills and knowledge to be ready for the energy transition, he urged making available to youth more employment, training, internship, and fellowship opportunities in the energy field. Asked about his own message to VEF 2021, Faleye called for less talk about ambition and more action from the older generations. “After all,” he said, “the climate will not wait for us.”

HIGH-LEVEL THEMATIC PLENARY 1 – ACCELERATING ACTION

Kelly moderated this thematic plenary and its panels on Tuesday, 6 July, stating that the goal of the plenary was to build momentum towards supporting outcomes at the HLDE in September and UNFCCC COP 26 in November.

Ministerial Statement: Gerd Müller, Federal Minister for Economic Cooperation and Development, Germany, noting that around 800 million people worldwide still lack access to electricity and 2.6 billion have no clean energy for cooking, emphasized the importance of a just energy transition. He announced that Germany will increase its funding for climate action from EUR 4 to 6 billion over time, including support for Africa, which has the potential to become the first truly green continent.

PANEL 1 – ENERGY GOALS BY 2030

This panel was tasked with outlining frameworks for climate targets and highlighting how strengthened commitments to accelerating a just energy transition can act as a powerful catalyst towards achieving climate neutrality by 2050.

Damilola Ogunbiyi, CEO, SEforALL and Co-Chair, UN Energy, noted the success of the recent Ministerial Thematic Forums for the HLDE, spotlighting important energy compacts announced there. More countries, enterprises, and people need to be on board with energy compacts and ambitious goal initiatives, she said, stressing the catalytic role the private sector and youth can play to bring about the transformation.

Haoliang Xu, UN Assistant Secretary-General and Assistant Administrator, UN Development Programme (UNDP), noted a more balanced approach is needed that focuses on both supply and demand. He emphasized the importance of a decentralized renewable-based solution, whereby people transition from being energy consumers to being energy producers. He stated that we need a new social contract emphasizing solidarity to help fossil-fuel dependent communities switch to renewable solutions. This, he said, requires political will, funding, and e-skilling, and, more importantly, a people-focused approach where people's needs, constraints, and capabilities are at the heart.



PANEL 2 – TOWARDS COP 26

Kelly explained this panel was to outline frameworks for climate targets, highlighting how strengthened commitments to accelerating a just energy transition can serve as a powerful catalyst towards achieving climate neutrality by 2050.

During the panel discussion, Angela Wilkinson, Secretary General and CEO, World Energy Council, called for substantial investment in global energy literacy and diversification of skills to enable transformational change in the energy sector. She urged “humanizing energy” to gain greater understanding and buy-in from average citizens to transformational change. “We have too much talk about roadmaps and not enough about building bridges” to a better understanding of the energy transition, she said.

Ovais Sarmad, Deputy Executive Secretary, UNFCCC, said the Paris Agreement goals are clear and will require rapid and far-reaching, transformational change. However, he said despite an uptick in renewable energy adoption, change is not happening fast enough nor widely enough to avoid missing the net zero goal. He called for: aligning all public and private financing with Paris Agreement goals; “getting all hands on deck” by promoting inclusive multilateralism that involves everyone; and achieving success at COP 26, namely through increased ambition, reduced emissions, and moving beyond negotiations to full-fledged implementation.

Kavita Sinha, Deputy Director, Mitigation and Adaptation, GCF, characterized current investments towards the energy transition as a “drop in the bucket” that would require a “humongous” increase in financing to meet the goals that no single source could provide. She urged “working as one” to use capital for the energy transformation efficiently and effectively, observing “we don’t have time left to use capital ineffectively anymore.”

Francesco La Camera, Director-General, IRENA, emphasized that the energy transition “is unstoppable” but not moving fast enough to achieve the Paris Agreement goals. He noted that IRENA’s recently released World Energy Transitions Outlook states that an average annual investment of USD 4.4 trillion is needed to realize the Paris Agreement goals. However, he lamented that current levels are a fraction of that.

HIGH-LEVEL THEMATIC PLENARY 2 – FOOD SYSTEMS

Rana Ghoneim, UNIDO, moderated this thematic plenary and its two panels on Tuesday, 6 July. The plenary explored action-oriented solutions to integrate renewable energy solutions into food systems and highlighted the potential for multiple wins at all stages of the value chain. The session also discussed how this transformation and decentralized renewable energy systems can make a significant contribution to a sustainable and inclusive transformation of food systems and enhance gender equality and empowerment of youth.

Organizational Statement: Qu Dongyu, Director-General, Food and Agriculture Organization of the UN (FAO), delivered the organizational statement. He said the challenge we face is to decouple the use of fossil fuels in agri-food systems, without hampering food and energy security in rural areas. He referred to FAO’s Energy-Smart Food programme, which strives to ensure adequate access to sustainable energy along the entire food chain.

Ministerial Statement: Abshiro Halake, Senator, Kenya, said Kenya’s key priority actions to accelerate sustainable energy include setting up the necessary institutional frameworks, including governance structures and policy frameworks. She noted that Kenya has made great progress in establishing national policies on climate finance, transport, and smart agriculture, but serious gaps remain in terms adequate resource allocation for implementation.

PANEL 1 – SCALING UP FOOD PRODUCTIVITY

This panel was tasked with examining:

- How the integration of renewable energy and energy efficiency improvements can make a significant contribution to a sustainable and inclusive transformation of food systems;
- Measures that can trigger productivity improvements, while creating market demand for energy services; and
- Options for affordable commercial financing.

Audrey Desiderato, Co-Founder and Chief Operations Officer, SunFunder, noted that one of the main constraints to decentralizing renewables in food systems is finance availability for smallholders who would greatly benefit from switching from rainfall dependency to solar-powered irrigation systems. Innovative financing models, tailored solutions, enabling environments, and behavioral changes were required for this purpose, she said. She suggested the benefits of linking food to energy policies outweighed the costs given the potential impact on SDG achievement and climate change action.

Magdalena Kouneva, Director General, Renewable Energy and Energy Efficiency Partnership (REEEP), noted that financing models for smallholder electrification were gradually becoming more viable, but noted remaining constraints, including the need to make small projects more attractive to investors in terms of scale. The availability of support for entrepreneurs and strengthening of domestic financial systems to make them more responsive to renewable energy investment capital demands is key, she added.

Samir Ibrahim, Co-Founder and CEO, SunCulture, indicated that climate change is the biggest threat to food systems and negatively impacts small farmers, who are heavily dependent on rainfall. He suggested that supporting smallholders' switch to solar-powered irrigation will increase agricultural productivity and avert deforestation and climate change, while at the same time the solar power involved can offer additional options for earning livelihoods. Solving "energy poverty" can help address "economic poverty," Ibrahim concluded, but financing obstacles and institutional barriers must be overcome.

Ministerial Statement: Omar Paganini, Minister of Industry, Energy and Mining, Uruguay, noted that while his country has succeeded in generating 97% of its power from renewables, 57% of energy consumption still comes from fossil fuels, mainly in transportation and industry. He explained Uruguay is tackling these by promoting electric transportation, green hydrogen, a circular economy, and a climate-friendly transformation of industry. Noting that Uruguay is a major food exporter, Paganini outlined steps to address greenhouse gas (GHG) emissions from the sector through energy efficiency measures and minimization of emissions and waste from food production.

Malik Amin Aslam, Federal Minister for Climate Change, Pakistan, discussed his country's commitment to combat climate change, explaining it featured two main action pathways: energy and forestry. On the energy side, he noted Pakistan's goal of 60% clean energy by 2030 and its move to promote clean transport.

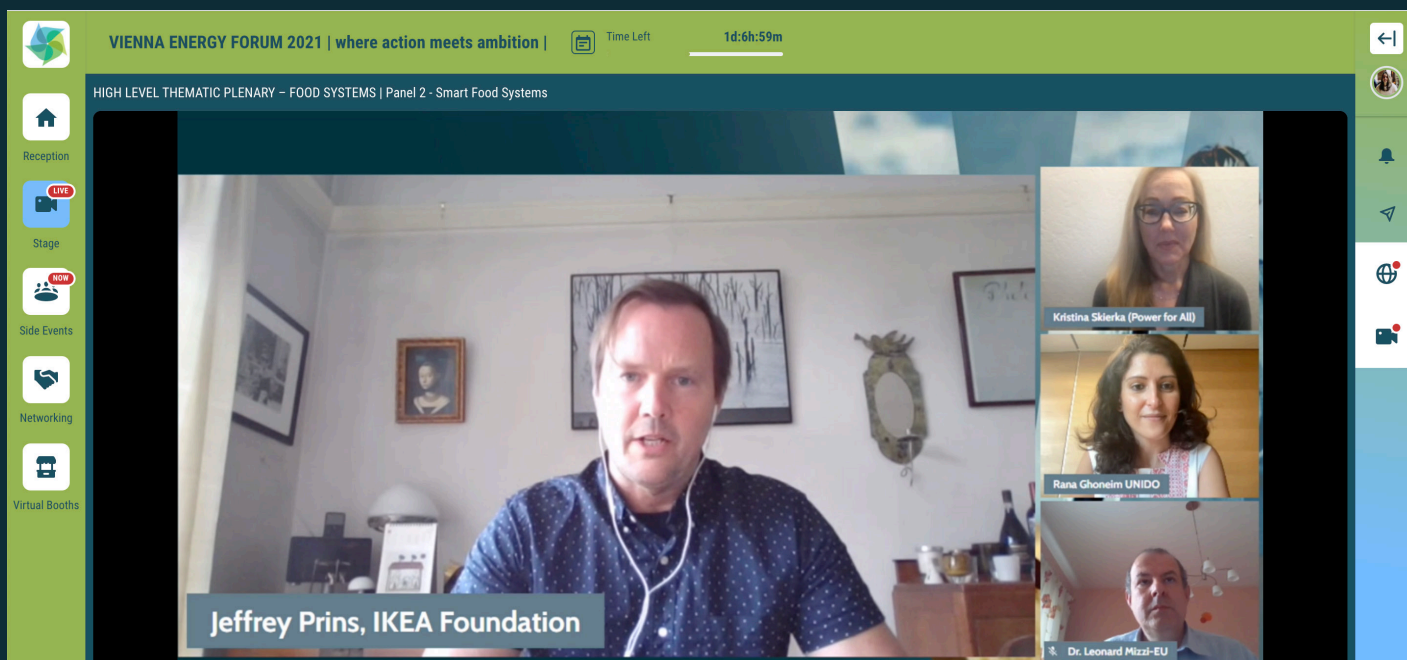
PANEL 2 – SMART FOOD SYSTEMS

This panel sought to examine how digitalization and improved access to data can accelerate the speed and scale of energy-food system transformation and improve energy access, making it practically and economically viable, while ensuring the gender digital divide is not further exacerbated.

Leonard Mizzi, European Commission, noted how food systems, energy systems, climate change, biodiversity loss, and digitalization are connected and should be treated holistically rather than in silos. He suggested policies and policy coherence is a more important barrier to address than finance.

Jeffrey Prins, IKEA Foundation, underscored how energy access lies at the nexus of poverty and climate. He highlighted the need for inclusively regenerative farming practices that keep the end user in mind when transforming food systems. He also described several experiments in the field with providing innovative approaches to financing energy access, such as pay-as-you-go systems conducted through cell phones in East Africa, microfinancing schemes, and Avanti Finance in India.

Highlighting the nexus of food and energy insecurity, Kristina Skierka, CEO, Power for All, noted that in most African countries, agriculture is still undertaken by smallholder farmers, who cannot be as productive as possible because of a lack of access to energy and financing. She said less than 0.2% of climate finance currently goes to such smallholder farmers despite their importance in Africa, India, and much of Asia. Skierka described Power for All's recently launched Utilities 2.0 global initiative to unite centralized utilities and the decentralized renewable energy sector to end energy poverty faster. She urged going beyond providing power connection, however, and ensuring the power provided actually serves the end user's needs.



HIGH-LEVEL THEMATIC PLENARY 3 – INDUSTRY INTEGRATION

Dan Dorner, Head, Clean Energy Ministerial Secretariat, moderated this thematic plenary and its two panels on Tuesday, 6 July. He explained the plenary was tasked with delving into the need to harness the “build back better” momentum to channel renewable energy/sustainable investments, green finance instruments, and direct recovery efforts to build capacity across industrial value chains and to create pathways to energy efficient industrialization that also address social inequalities.

Organizational Statement: Rafael Mariano Grossi, Director General, International Atomic Energy Agency, indicated that experts agree nuclear must part of the solution to climate change, including the Intergovernmental Panel on Climate Change, which considers we will need between a 59% to 501% increase in nuclear energy to meet the 1.5°C target. He said that France and Sweden have proven that, nuclear, combined with hydropower, could help decarbonize an entire economy's energy production.

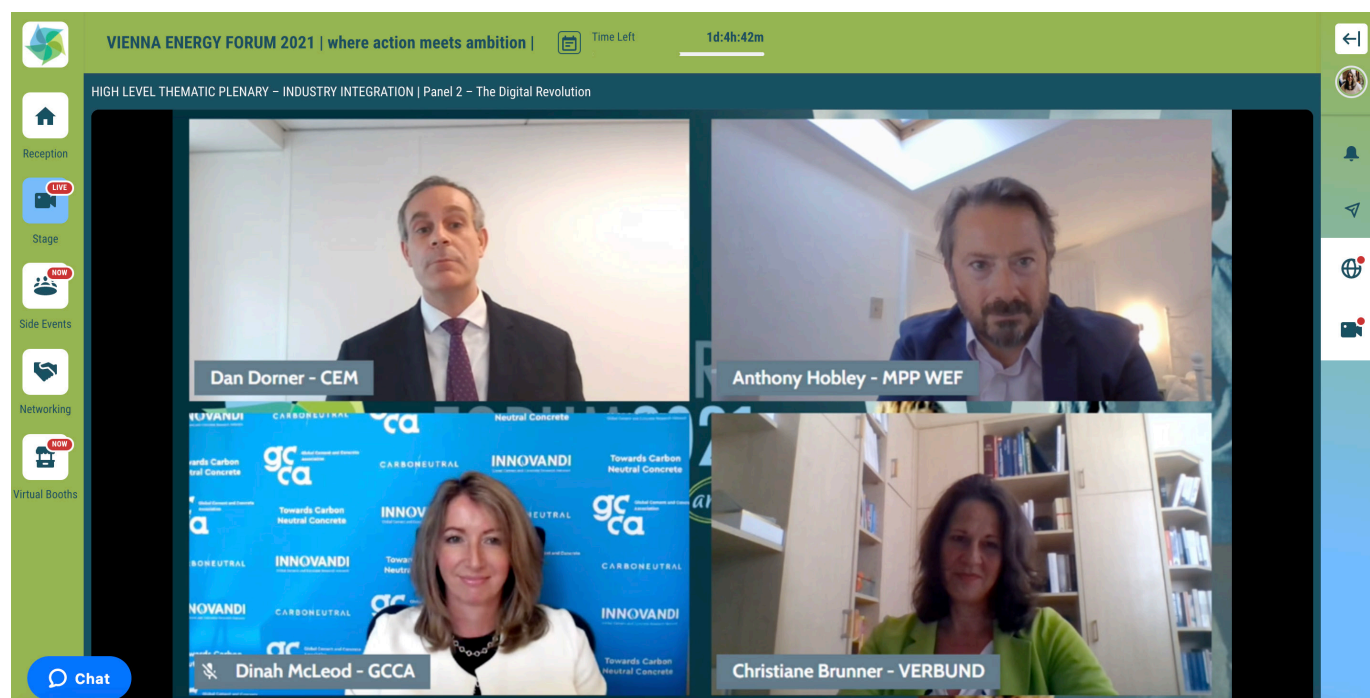
PANEL 1 – WINNING THE RACE TO ZERO

This panel explored the role energy intensive industries can play in creating positive multiplier effects towards achieving a carbon-neutral economy, increasing energy security, and creating sustainable jobs for everyone.

Anthony Hopley, Co-Executive Director, Mission Possible Platform and Executive Fellow, World Economic Forum (WEF), indicated that Mission Possible partners with public and private enterprises are working to set hard-to-abate industries on the pathway to net-zero emissions by 2050. Noting these sectors represent 30% of global energy demand, he said that we could decarbonize the whole economy if efforts in these sectors succeed. Acknowledging the transition would disrupt many industries, Hopley called for a systemic and sectoral approach focused on demand driven clean energy technological innovations, infrastructure development, public-private partnerships (PPPs), and transition roadmaps.

Dinah McLeod, Chief Executive, Global Cement and Concrete Association (GCCA), indicated that the cement sector represents 7% of global GHG emissions, which is why GCCA's announcement to become climate neutral by 2050 is significant. To meet this goal, the Association is working with nine regions to develop roadmaps and engaging in a partnership with Mission Possible and the WEF called "Concrete Action for Climate."

Christiane Brunner, VerbundAG, indicated that her company's supply portfolio is comprised of 90% renewable energy sources. Noting Austria aims to obtain 100% of its energy from renewable sources by 2050, she stressed the need for developing roadmaps for green hydrogen and other types of technologies and establishing favorable market signals through policies geared towards carbon pricing and the removal of fossil fuel subsidies.



Organizational Statement: Joseph McMonigle, Secretary General, International Energy Forum (IEF), emphasized IEF's advocacy of expanding carbon capture, use and storage (CCUS). He stressed that expanded CCUS will be critical for the creation of a hydrogen economy and a circular carbon economy. He noted the IEF launched its Methane Initiative in June 2021 to develop a methane emissions measurement methodology, enabling member countries to collect standardized data to mitigate methane emissions from the energy industry.

PANEL 2 – THE DIGITAL REVOLUTION

This panel discussed how the pandemic reinforced digitalization as a critical enabler to transform markets, spur innovation, and accelerate the integration of safe, sustainable energy in industrial value chains.

Gökçe Mete, Head of the Secretariat – Leadership Group for the Industry Transition (LeadIT), Stockholm Environment Institute, discussed the benefits of artificial intelligence (AI) and machine learning for hard-to-abate industries such as steel, cement, and aluminum. She said AI and machine learning can assist in evaluating new technologies rapidly, promoting harmonized standards, and fostering transparent certification mechanisms for “green steel” or “green cement” products. Mete added they can also improve predicting and tracking emissions, maximizing efficiency, managing production assets, and minimizing resource use.

Dirk Fransaer, Managing Director, Flemish Institute for Technological Research (VITO), Belgium, noted growing opportunities for the digital transformation of energy use by industry. He explained the example of “digital twin” virtual modeling of processes to see the impacts of potential changes and to better meet energy supply and demand. Fransaer noted the technology is particularly useful for district heating systems in managing peak sharing and stabilizing indoor temperatures in thermal systems.

Cate Hight, Rocky Mountain Institute, discussed how digital technology can be used to create demand for a market differentiated product, while improving accountability and traceability in supply chains. She said a market for “green steel” has not been seen yet because, until recently, there was no way to track it from cradle to grave, so product claims were not trusted.

Moderator Dorner questioned what can be done in the near term to promote industry decarbonization. Panelists responded with:

- Identifying public policy and regulatory needs;
- Creating frameworks flexible enough to deal with fast-moving technologies;
- Adopting widespread government procurement of green products from hard-to-abate industries; and
- Using digital technologies to make the end user part of the process rather just a passive consumer with no input.

HIGH-LEVEL THEMATIC PLENARY 4 – ENERGY-EFFICIENT PRODUCTS

Steven Kokuda, Executive Director, International Copper Association, moderated this thematic plenary and its two panels on Tuesday, 6 July. He explained the plenary sought to explore action-oriented solutions that have emerged to encourage the large-scale adoption of energy efficient products to enable mass market access.

Ministerial Statement: Matthew Opoku Prempeh, Minister of Energy, Ghana, delivered the first ministerial statement. He highlighted Ghana’s efforts towards achieving the SDGs and the climate agenda, including:

- Lowering GHG emissions by 15% by 2030;
- Electrification to achieve an 85.5% energy access rate; and
- Updating its Nationally Determined Contribution to include clean cooking, mini grid development, energy efficiency, and a recent amendment to its Renewable Energy Act requiring fossil fuel energy suppliers to diversify their energy mix.

PANEL 1 – SUSTAINABILITY VS. PROFITABILITY

This panel sought to discuss the enabling factors for product innovation, such as youth engagement, digitalization, and technical support for entrepreneurs. Panelists discussed proven policy and regulatory interventions to encourage market development, as well as the need for social innovation to ensure women and youth benefit from energy efficient products.

Alfonso Blanco-Bonilla, Executive Secretary, Latin American Energy Organization, indicated that most countries in the region have established energy efficiency legislation and standards for different types of products and appliances, and have made progress to apply ISO 50001 energy efficiency management standards. Despite this progress, he noted remaining constraints, including lack of a stable policy environment, fossil fuel subsidies, inadequate business models, and insufficient financing.

Sumedha Malaviya, World Resources Institute, India, noted energy performance standards as important policy instruments. She referred to India's efforts to produce cooling appliances with increased energy efficiency, in an attempt to bridge the gap between best available and existing technologies. Malaviya emphasized the need for more efforts to quantify and publicize the co-benefits of energy efficiency, including through the establishment of targets and indicators.

Lisa Jacobson, President, Business Council for Sustainable Energy, US, referred to increased environmental, social, and governance initiatives on energy efficiency among US companies and the fact that the US Securities Exchange Commission is now more involved in regulating these types of activities. Overcoming barriers to energy efficiency requires a combination of good policy and active business involvement and participation, she concluded.

Ministerial Statement: Antonio Almonte, Minister of Energy and Mines, Dominican Republic, described his country's efforts to promote energy savings, rational energy use, and energy efficiency in industry and among citizens. He noted that a draft law on energy efficiency has been proposed to Congress.

PANEL 2 – AFFORDABILITY MATTERS

This panel explored the importance of deploying innovative business models to create large-scale market pull and reduce barriers to entry for both entrepreneurs and end users. Panelists discussed different strategies to increase uptake of more efficient products even though they often involve higher initial costs, such as: utility rebates for efficient products; greater access to climate finance; creative financing schemes; bundling with off-grid systems; consumer labeling; increasing consumer awareness of lower operational costs over product life; and restrictions on imports of less efficient appliances.

Rose Mwebaza, Director, UN Climate Technology Centre and Network (CTCN), described CTCN's work in Africa to promote more efficient appliances by working with women's groups and credit associations for green entrepreneurs. She also highlighted CTCN's work, supported by the European Union, with African and Asian youth in "climate innovation labs" that has resulted in remarkable hybrid energy solutions fit for local market conditions.

Koen Peters, Executive Director, Global Off-Grid Lighting Association (GOGLA), noted his members are increasingly selling highly efficient appliances as part of the off-grid solar home systems they sell. He also described a GOGLA's Connected Energy smart metering technologies that allow micro-utilities and distributors to monitor and control solar energy systems remotely, increasing quality of service and enabling pay-as-you-go for electricity.

Shilpa Patel, ClimateWorks Foundation and Kigali Cooling Efficiency Program (K-CEP), discussed the role that promoting new generation, highly efficient cooling equipment run on coolants with low to no global warming potential can play in reducing both energy demand and GHG emissions. She also highlighted innovative financing experiments for cooling-as-a-service, such as paying for cooling through a portion of product sales or small deductions from wages deposited in a bank account.



THE ENERGY CLUB – GETTING TO YES ON CLIMATE

On Tuesday afternoon Kelly interviewed William Ury, Co-Founder, Climate Parliament, and Mediator and Co-Founder, Harvard Law School Program on Negotiation. Ury discussed how VEF 2021's motto "where action can meet ambition" and the "seemingly impossible becomes possible," such as a major negotiated breakthrough occurring at COP 26. Drawing on his decades of experience in international negotiations, Ury explained his own negotiating strategy dubbed "BB3":

- "Balcony": take a step back from negotiations, whether through a walk or seeking fresh air on a balcony, and contemplate what really matters to you in the negotiations;
- "Look for the golden bridge": instead of pushing your own view, seek to attract allies by understanding better what they care most about in the negotiations; and
- "Seek a third side": build a winning coalition by listing who supports your key priorities and who does not, and steadily work to move other negotiators from the con to the pro list.

EXECUTIVE DIALOGUE 1: RE-IMAGINING OUR ENERGY SYSTEMS

Rana Adib, Executive Director, Renewable Energy Policy Network for the 21st Century (REN 21) moderated this dialogue and its two roundtables on Wednesday, 7 July. This dialogue sought to explore the challenge of accelerating global power system decarbonization while expanding grids to meet rising electricity demand, driven by increasing electrification, population growth, climate change, inequality, and economic development.

Ministerial Statement: Frehiwot Woldehanna, State Minister of Energy, Ministry of Water, Irrigation and Electricity, Ethiopia, stated that switching to renewable energy sources can contribute to SDG achievement in poverty eradication, electrification, education, and climate change mitigation. He said Ethiopia is making efforts to increase more renewables in its energy mix and to increase electrification through grid and off-grid solutions, considering that 60 million people lack electricity.

ROUNDTABLE 1 – RENEWABLE CAPITAL

This roundtable sought to explore the design flexibility offered by renewable energy auctions, drawing on case studies in which innovative approaches have been used to maximize the socioeconomic benefits of renewables.

The panel agreed that the availability of financing for renewable energy sources is no longer the problem, but rather the problem is having appropriate and predictable enabling environments, including regulatory frameworks, as well as a pipeline of bankable projects. Panelists indicated that market demand for renewables had driven costs down and highlighted the role that well-structured auctions could play to make the energy transformation viable. Since constraints to deploying renewables remain, including intermittence and storage, panelists called for increased PPPs.

Paddy Padmanathan, President and CEO, ACWA Power, explained how auctions can successfully drive the price of renewable energy down. As an example, he referred to the South African case, which achieved a 6,300 megawatts increase in renewable energy-based generation in 2015 through a well-structured auction supported by the right regulatory framework, mandatory targets, and community inclusion. This win-win model is now being replicated in other African nations, he noted.



Kevin Kanina Kariuki, African Development Bank, noted that, between 2020 and 2040, demand for energy in Africa will increase so financing will have to increase as well. He referred to auctions as a solution. Public funding, he explained, must be supplemented with private investment and enabling environments involving stable and predictable regulatory frameworks with favorable fiscal policies that promote renewables.

Helen Clarkson, CEO, The Climate Group, explained that RE100 is a global initiative that brings together the world's most influential businesses committed to 100% renewable electricity. She said the main barrier to promoting market competition for renewables is unfavorable policy frameworks.

Ministerial Statement: Yasmine Fouad, Minister of Environment, Egypt, stated that her country has taken tangible steps at the institutional level to mainstream climate change in policies and plans. She mentioned efforts to establish a new target to obtain 42% of the country's energy supply through renewables, including by reducing subsidies, emitting green bonds, and exploring hydrogen and green hydrogen as additional options.

ROUNDTABLE 2 – GREEN GRIDS

Panelists discussed how building a smart grid and interconnected grid infrastructure can drive a renewable energy revolution. They suggested interconnection within and between countries could lead to greater renewables uptake due to the larger scales and better management of power variations. Some suggested that such interconnection could lead to lower tariffs and closer economic relationships.

Ajay Mathur, Director General, International Solar Alliance (ISA), discussed ISA's advocacy of "one sun, one world, one grid." He urged greater interconnection of electrical grids between countries, which will allow solar energy systems in a country where the sun is not shining on a given day to still tap power from elsewhere. He also suggested countries consider establishing international bodies to build such connections, manage grid connections and variability, and decide on power tariffs. He noted a study by an organization of international transmission companies that suggests if greater interconnection takes place, a 13% drop in power tariffs would occur.

Mika Ohbayashi, Director, Renewable Energy Institute, Japan, noted studies her Institute has undertaken on the substantial potential benefits of linking Asia's largest power demand centers, China, Japan and the Republic of Korea, with Mongolia's hydropower generation potential. She decried the lack of interconnection of grids within Japan and Japan's modest ambition in the adoption of renewables at home.

Michael Wancata, Development Bank of Austria, noted that 40% of his bank's energy portfolio involves renewables and climate finance, with a heavy emphasis on Africa, but little work on power distribution or interconnection of grids. He cited heavy interest by private equity funds in investing in renewable energy in Africa, but said often projects are not properly developed and private equity is leery of a burdensome or uncertain regulatory environment.

EXECUTIVE DIALOGUE 2: CONSUMERS AT THE FOREFRONT

Irene Giner-Reichl, President, Global Forum for Sustainable Energy and Co-Founder of the Global Women's Network for the Energy Transition, moderated this dialogue and its two roundtables on Wednesday, 7 July. Participants discussed recent shifts in consumer preferences, and how big data, Internet of Things, and digital twins can be harnessed to place consumers at the forefront of the energy system transformation. The low-cost demand-side flexibility offered by consumers, coupled with advanced digital technologies, has allowed consumers to play an increasingly active role in the energy system by complementing the increased variability in electricity supply, driven by renewable generation.

Ministerial Statement: Livan Arronte Cruz, Minister of Energy and Mining, Cuba, noted his country's achievement of 99% electrification and its ambition to switch to 100% renewable sources in power generation. However, he said the ongoing embargo by the US is hampering efforts to import efficient equipment and renewable energy technologies.

Imad Hoballah, Minister of Industry, Lebanon, discussed his country's policy actions and ambitions. He mentioned a five-year strategy on energy efficiency and renewable energy, investment in solar energy manufacturing facilities, drafting decrees to encourage energy sector investments, and ongoing collaboration with UNIDO on e-waste and greening industry.

ROUNDTABLE 1 – DRIVING CHANGE

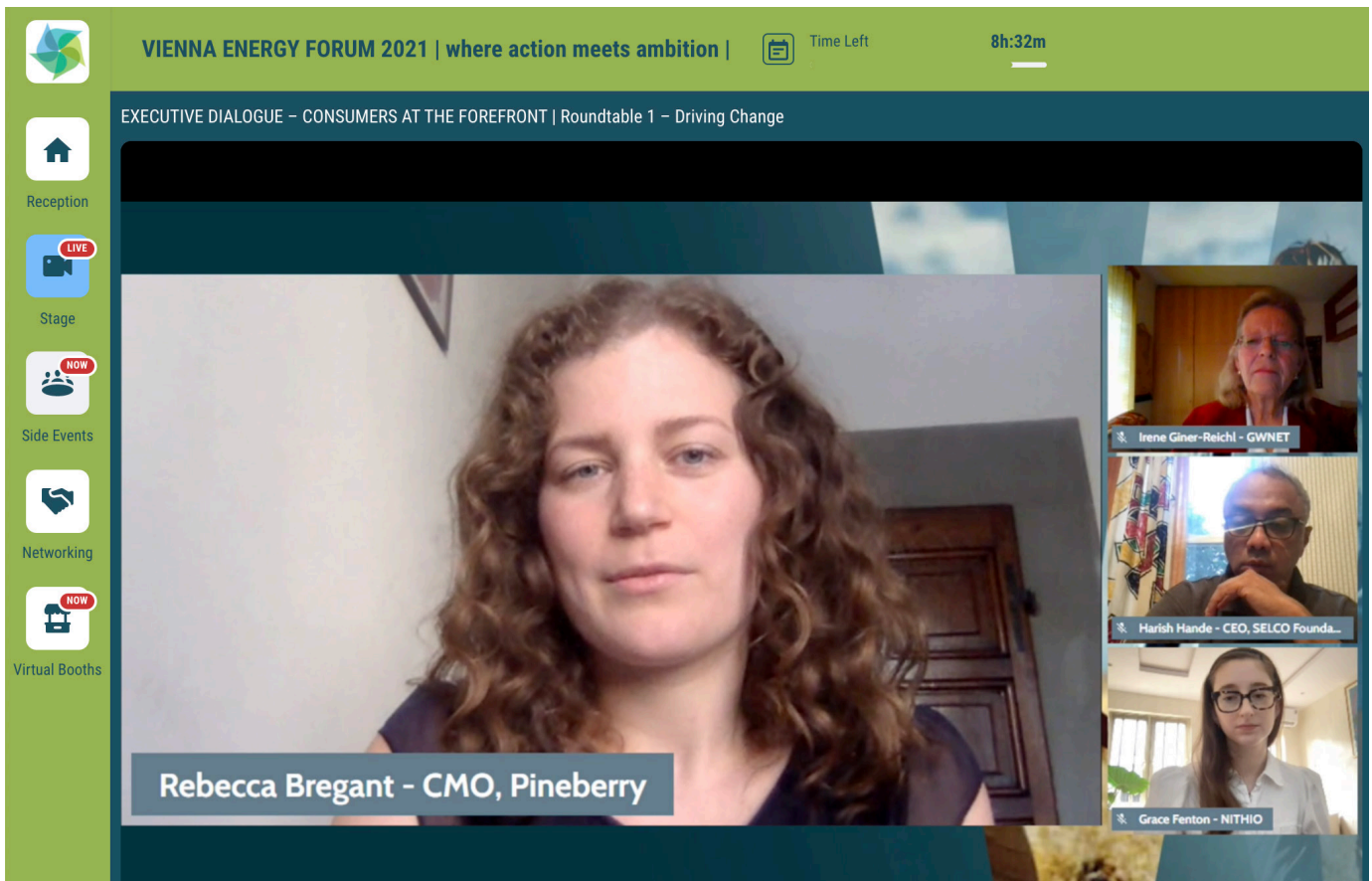
This roundtable aimed to explore the necessary policy and regulatory framework required to enable consumers to contribute to a flexible and green energy system.

Panelists urged avoiding the prevalent preference for building a large, centralized grid without first assessing consumer needs and instead recommended focusing on first diagnosing the true needs of end users. This would, they said, enable a bottom-up, more efficient approach to meet people's needs, particularly those currently lacking energy access.

Rebecca Bregant, Co-Founder, PineBerry, highlighted the challenge of developing good data to match potential end users with energy services in emerging markets like Africa. She noted data collection on the ground is "tricky" and time-consuming, while estimating via external data tools is not always fruitful. She urged putting the end user at the center of designing energy products and services.

Noting that 600 million people in Africa do not yet have access to electricity but half of those would be able to pay for it if they did, Grace Fenton, Nithio, suggested huge untapped demand for products in the market. The challenge, she said, is financing, namely matching capital to the end users who can pay while in the process ensuring no one becomes over-indebted.

Harish Hande, CEO, Selco Foundation, India, said that often energy policies and projects focus on increasing supply without considering precise demand needs and how best to promote sustainable consumption. He stressed that solar should not be framed as just another energy source, but rather as an enabler that allows energy systems to be more inclusive, particularly for women. He urged designing energy systems "with development at the center."



Ministerial Statement: Nasrul Hamid, State Minister for the Ministry of Power, Energy and Mineral Resources, Bangladesh, highlighted his country’s ambition to lower energy intensity by 20% by 2030 through energy efficiency and savings, and its target of 40% renewable energy share in the national energy mix by 2041. He noted the recent installation of 5.8 million home solar systems to improve energy access in off-grid areas and plans to import hydro-generated power from Bhutan, India, and Nepal.

ROUNDTABLE 2 – NEW SERVICES

This roundtable delved into the opportunities for energy as-a-service (EaaS) providers to align services to end user dimensions and further expansion of renewables.

Panelists agreed that developments in domestic and regulatory frameworks, as well as increased consumer awareness and digitalization could lead to a shift to EaaS as a model. However, they contended that certain constraints remain, including: monopolies held by many utilities; energy subsidies; outdated regulatory frameworks; complexity of digitalization; and deployment of technology and assets.

Filip Koprčina, Founder and CEO, Energy Shift, Cyprus, said that financing is not an issue because clean energy is in high demand and costs have decreased. However, he said that barriers persist, including disregard of the consumer-end perspective, grid accessibility, energy storage, and enabling environments.

Michael Villa, Executive Director, Smart Energy Europe (smartEN), indicated that unlocking demand will require: participation of all end users and energy communities; eliminating regulatory barriers; and incentivizing innovative business models to include energy communities.

Lorena Skiljan, Managing Partner, Nobilegroup, Austria, said that enabling EaaS, will require updating laws and regulatory frameworks and a combination of top-down and bottom-up approaches. She cited as an example a recent law passed by the Austrian government that is aligned with EU regulatory requirements, which allows peer-to-peer energy supply.

EXECUTIVE DIALOGUE 3: FUTURE MOBILITY

Maruxa Cardama, Secretary General, Partnership on Sustainable, Low Carbon Transport, moderated this dialogue and its two roundtables on Wednesday, 7 July. She pointed out that road vehicles represent almost three quarters of emissions for the transport sector, noting, therefore, that electric mobility solutions powered by renewable energy will be essential for meeting Paris Agreement targets.

Ministerial Statement: Tuan Ibrahim bin Tuan Man, Minister of Environment and Water, Malaysia, presented his country's efforts to combat climate and promote energy transition, including: a carbon pricing policy; a Low-Carbon Mobility Blueprint; a low-carbon cities programme; and a green recovery plan.

ROUNDTABLE 1 – GREEN TRANSPORTATION

Panelists discussed the challenges and opportunities in electrifying vehicle fleets, particularly public transport used by most citizens in developing countries and the three-wheeled taxis and delivery vehicles prevalent in the Asia-Pacific. They stressed development of a suitable charging infrastructure. Panelists agreed on the need to keep vehicle electrification within a broader sustainable transport context. They also discussed what to do with the motorized vehicles replaced by electric vehicles (EVs) and how to repurpose batteries, so as not to export or create a waste problem through the transition to EVs.

Sheila Watson, FIA Foundation, noted her work on the Global Fuel Economy Initiative to promote fuel efficiency in cars and light duty vans had brought progress worldwide, albeit not fast enough. She decried the lack of green transportation elements in most COVID recovery packages. While supporting EVs generally, she stressed not everyone should drive private electric cars since this would lead to traffic congestion and noted the need for non-motorized transport options.

Joanna Edghill, Managing Director, Megapower Ltd., Barbados, noted her firm's efforts to promote electric mobility has been aided by a supportive government that seeks to electrify its vehicle fleets and public transport buses. She expressed hope that Caribbean neighbors would soon follow suit.

Raja Gayam, Founder and CEO, Gayam Motor Works, India, described his company's efforts to replace three-wheeled vehicles fueled by fossil fuels with electric ones. He noted the importance of finding ways to make them affordable to taxi drivers and delivery people but durable enough to deal with Indian road conditions. He stressed the need for building a charging infrastructure so a charging station is never more than 3-4 kilometers away.

Ministerial Statement: Hala Adel Zawati, Minister of Energy and Mineral Resources, Jordan, said the shift towards electric transportation requires social marketing and called for increased PPPs for innovation. She outlined Jordan’s efforts to increase the supply of renewable energy sources, particularly for the transportation sector since it currently consumes 47% of the energy in Jordan.

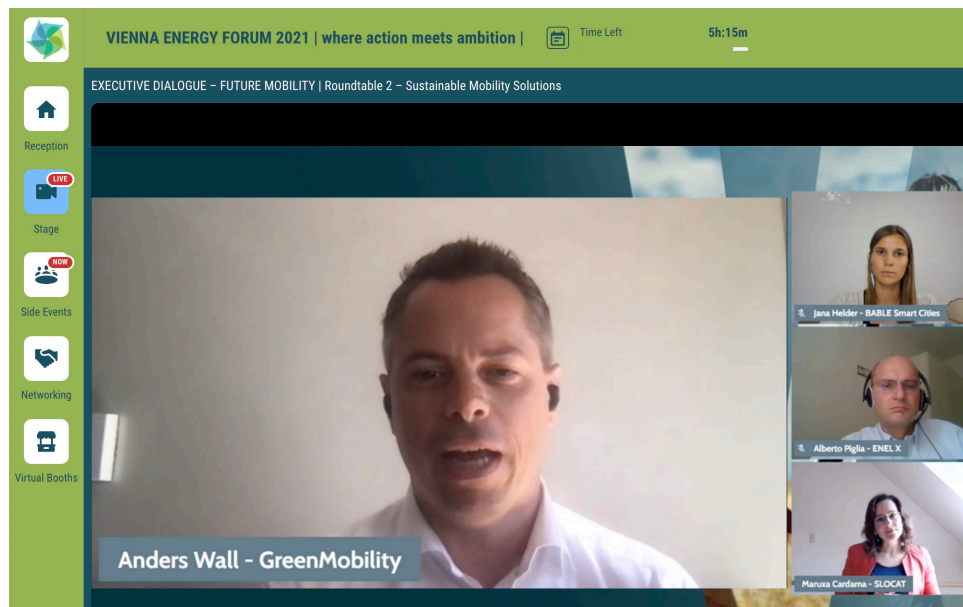
ROUNDTABLE 2 – SUSTAINABLE MOBILITY SOLUTIONS

This roundtable sought to explore the importance of fast-charging infrastructure in imbuing both investor and end-user confidence in electric mobility. Panelists acknowledged the rapid pace of mobility electrification in recent years, but said more consumer buy-in, stakeholder involvement, availability and accessibility of charging stations, better city planning, and enabling environments were required. While recognizing impediments related to geographic and socioeconomic differences, panelists underscored that mobility electrification also needs to happen in small towns and rural areas.

Jana Helder, BABLE Smart Cities, noted that while the market for electric cars is increasing, for mobility to be truly sustainable, more renewables must be added to the energy mix that feeds the grid, consumer perception must change, and a broad range of stakeholders must be involved.

Anders Wall, GreenMobility A/V, Denmark, said promoting charging infrastructure is essential, but making this possible is very site-specific and varies according to geographic and socioeconomic conditions, which must be considered for planning and financing.

Alberto Piglia, Enel X, said the road to decarbonization is set and noted that as market competition for EVs increases, costs will decrease. Increasing the accessibility and availability of charging stations is indispensable, particularly large capacity ones for massive public transportation, he added. He noted that the greatest impediments to mobility electrification are outdated regulatory frameworks, bureaucracy and transaction costs. He called for more PPPs.



EXECUTIVE DIALOGUE 4: THE CLIMATE IMPERATIVE: SPOTLIGHT ON SMALL ISLAND DEVELOPING STATES

Tareq Emtairah, UNIDO, moderated this dialogue and its two roundtables on Wednesday, 7 July. He set the tone for the dialogue by highlighting the specific vulnerabilities of SIDS and noting how COVID-19 has made the attempts to draw in energy transition investments and financing more difficult.

Ministerial Statement: Peter Launsky-Tieffenthal, Deputy Federal Minister of European and International Affairs, Austria, stressed his country's commitment to supporting SIDS to electrify while tapping locally available renewables, thereby reducing fuel import dependency and decarbonizing their economies. He discussed the role played by the global network of regional centers, supported by UNIDO, Austria and Germany, that seeks to identify and bridge technological and financing gaps. He urged even more regional cooperation among SIDS to reach economies of scale and achieve their energy transition more quickly.

ROUNDTABLE 1 – RESILIENT NETWORKS

Panelists agreed that building resilience in the power sector in SIDS is crucial given their vulnerability to climate change and extreme weather events. However, they said it may be wiser to build a network of mini-grids fed by locally available renewable energy rather than rely on a centralized power grid model. Panelists also agreed SIDS cannot make the needed investments without help and that current public funding for the energy transition in SIDS is a fraction of what it should be. Some also advocated for creating a supportive ecosystem for incubating locally appropriate energy innovations rather than relying on patented imported technologies.

Carlos Manuel Rodríguez, CEO and Chairperson, Global Environment Facility (GEF), noted the GEF has a long history of helping SIDS. He recounted lessons from his tenure as a Minister of Environment and Energy in Costa Rica, where the Energy and Environment Ministries were combined to break silos and promote synergies between the two sectors. He said Costa Rica chose to seek innovative, local financing schemes rather than await external help. He also described the GEF's intention to focus, during the GEF-8 replenishment, on:

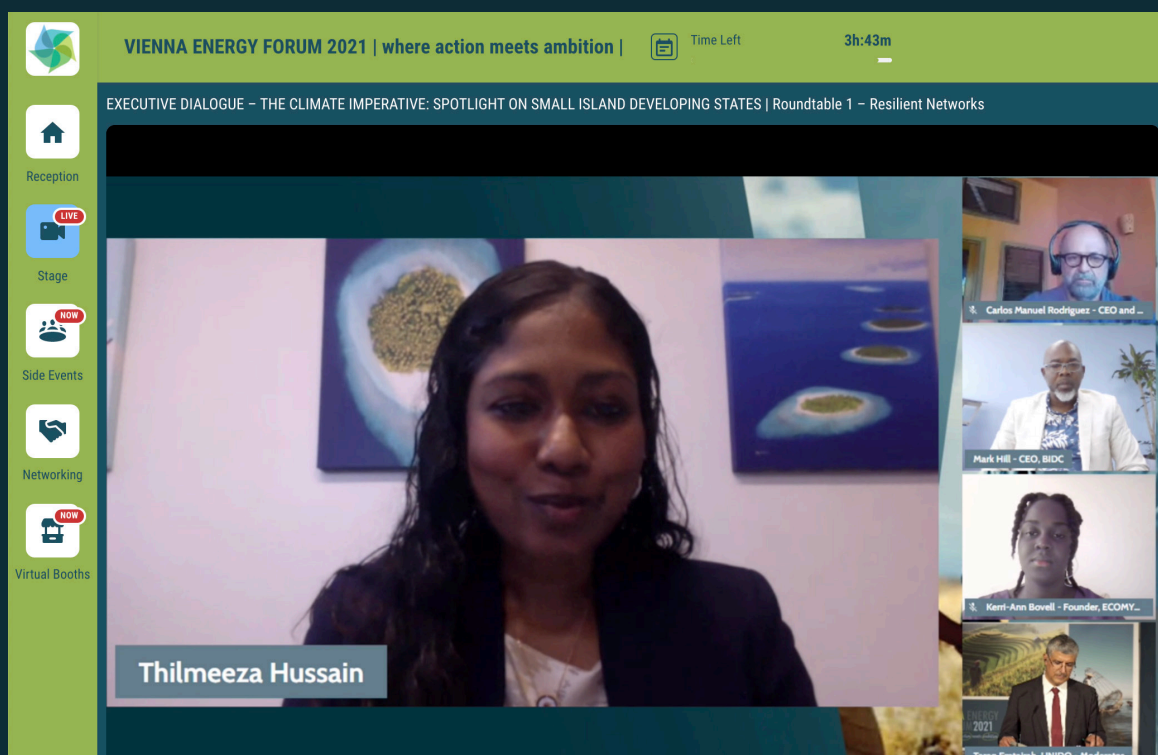
- Scaling up what the GEF has already tested;
- Promoting a clean, blue and green, and resilient recovery;
- Improving policy coherence within governments of beneficiary countries; and
- Its partnerships fully.

Mark Hill, CEO, Barbados Investment and Development Cooperation, said Hurricane Elsa has led to some rethinking about Barbados' grids and the need to promote off-grid systems and battery storage technology suitable for island conditions. He urged more funding for research and development in clean technology that has not yet been commoditized and taking steps to ease business conditions for renewable startups. He emphasized that getting a license for a renewable technology should take three months instead of the current year or more.

Kerri-Ann Bovell, Founder, EcoMycö, Barbados, advocated a reduction by SIDS of import duties on clean technology to help young energy entrepreneurs in those countries establish themselves.

Thilmeza Hussain, Permanent Representative of Maldives to the UN, on behalf of Walton Alfonso Webson, Chair of the Alliance of Small Island States, highlighted three interests of SIDS:

- Leveraging more scaled up investments from the public and private sectors;
- Expanding national capacity for the deployment of renewable energy technologies; and
- Sustainable transport technologies that can expedite or scale up the deployment of renewable energy technologies.



Ministerial Statement: Miriam Dalli, Minister for Energy, Enterprise and Sustainable Development, Malta, highlighted her country’s push for a “blue economy” including a shift to offshore wind and solar energy and sustainable maritime transport in line with the European Green Deal.

ROUNDTABLE 2 – THE BLUE ECONOMY

This roundtable sought to discuss the opportunities presented by the roll-out of blue sustainable energy and climate technologies to help SIDS diversify their economies, create new income streams, reduce fuel import dependencies, and support local COVID-19 recovery efforts.

Panelists concurred that to take full advantage of the blue economy, SIDS must be re-framed as “large ocean states” to attract investment leading to a green, inclusive, and sustainable path. Impediments identified included remoteness, small economic scale, limited territory, and high vulnerability to climate change.

Noting her organization works in 27 countries in the Caribbean region, Racquel Moses, CEO, Caribbean Climate-Smart Accelerator, said to fully harness the potential of renewables in the region, development funding agencies must consider SIDS' vulnerabilities and solutions should be targeted to developing the region.

Solomone Fifita, Manager, Pacific Centre for Renewable Energy and Energy Efficiency, said while the opportunities presented by the blue economy are endless, certain constraints, including meeting the necessary scale to attract investment, necessitate why regional long-term initiatives like Blue Pacific.

Gary Jackson, Executive Director, Caribbean Centre for Renewable Energy and Energy Efficiency, emphasized the importance of a bottom-up approach that focuses on people and not only on technologies. He said the right tools are needed for innovation, including enabling regulatory frameworks that promote investment, innovation, and capacity building.

Thomas Siebenbrunner, Swimsol GmbH, spoke about the difficulties of scaling offshore wind and solar renewable energy technologies because the necessary conditions were very site-specific, including the fact that wind patterns and speed vary from place to place, for example.

CLOSING SESSION

To bring us closer to our goals, the forum concluded by calling on Governments, private sector, academia and civil society to:

1. Design and implement coherent policies that bring perspectives of the various end-use sectors such as food systems, industry, transport, energy, and to break down the silos. These policies must align with the development and climate goals and cater to the needs of youth and women.
2. Allocate funding for research and development aimed at stimulating targeted innovation at grass root level; innovation that advances decent livelihoods and development and takes into account the needs of consumers. Innovation is key in bringing new technologies to the market at a scale and speed proportional to the challenge
3. Invest in improving the accessibility and affordability gap of technologies for small-holder farmers, for rural households, for transportation and equally for industry. This includes investing in de-risking large-scale projects and developing policies and regulatory frameworks that encourage the roll out of energy as a service model.
4. Transform the education system and rethink the school and vocational curricula, making them more practical and hands on; offering more focused education that equips the future generation with the skills required by the markets and supports the re-skilling of those entering into or already working in the sector.
5. Promote gender disaggregated data driven approaches that improve the availability and transparency of data, helping us both in making and in tracking progress.

UPCOMING MEETINGS

High Level Dialogue on Energy (HLDE): The UN Secretary-General is convening this dialogue under the auspices of the UN General Assembly to promote implementation of the energy-related goals and targets of the 2030 Agenda for Sustainable Development, and to raise ambition and accelerate action towards achievement of SDG 7 and its targets. Date: 20 September 2021 location: UN Headquarters, New York www: <https://www.un.org/en/conferences/energy2021>

Glasgow Climate Change Conference (UNFCCC COP 26): COP 26, the 16th meeting of the COP serving as the Meeting of the Parties to the Kyoto Protocol (CMP 16), and the third meeting of the COP serving as the Meeting of the Parties to the Paris Agreement (CMA 3) are expected to convene one year after the conference was postponed due to COVID-19. Dates: 1-12 November 2021 location: Glasgow, Scotland, UK www: <https://unfccc.int/>

For additional meetings, see <https://sdg.iisd.org/>